

Claims

10/501221
DT04 Rec'd PCT/PTO 12 JUL 2004

1. Method for the determining the position of a mobile object (MT) using at least one radio signal with a rotating transmission

5 characteristic (1, 7, 9) of at least one reference station (BS), characterized in that

- the mobile object (MT) when detecting the radio signal checks for the presence of a reference event (t0, t4, ..., SFN0, SFN4, ...), with the relationship between the orientation of the transmission characteristic
10 (1, 7, 9) and reference events (t0, t4, ..., SFN0, SFN4, ...) being known to the mobile object (MT) and defined data structures or data content (SFN0, SFN4, ...) of the radio signal being communicated as reference events, and

- the mobile object (MT) determines the orientation of the transmission
15 characteristic (1, 7, 9) from the reference event (t0, t4, ..., SFN0, SFN4, ...), and

determines a position relative to the reference station (BS) from the orientation of the transmission characteristic (1, 7, 9).

20 2. Method in accordance with Claim 1, characterized in that

the mobile object (MT) additionally determines its relative distance (d) to the reference station (BS) from the signal parameters (P) of the radio signal.

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3. Method in accordance with the preceding Claim, characterized in that

physical transmission parameters of the radio signal measured by the mobile object are regarded as signal parameters (P).

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4. Method in accordance with Claim 2,
characterized in that
data content of the radio signal containing information on physical
transmission parameters of the radio signal is regarded the signal
5 parameter.

5. Method in accordance with one of the preceding Claims,
characterized in that

- 10 - the mobile object (MT) when detecting a second radio signal checks
for the presence of a reference event (t0, t4, ..., SFN0, SFN4, ...),
determines the orientation of the transmission characteristic (1, 7, 9)
of the second radio signal from the reference event (t0, t4, ..., SFN0,
SFN4, ...), and from the orientation of the transmission characteristic
15 (1, 7, 9) of the second radio signal determines its position relative
to a second reference station (BS2), and
- the mobile object (MT) determines its position relative to the
reference stations (BS1, BS2) from the position relative to the first
and second reference station (BS1, BS2).

20 6. Method in accordance with one of the preceding Claims,
characterized in that
time-related reference events (t0, t4, ...) are communicated as
reference events.

25 7. Method in accordance with Claim 1,
characterized in that
identification data (SFN0, SFN4, ...) that identifies the specific data
segments of the radio signal are communicated as reference events.

30 8. Method in accordance with one of the preceding claims,
characterized in that

numbers of data frames are communicated as identification data (SFN0, SFN4, ...).

9. Method in accordance with a preceding Claim,

5 characterized in that

the transmission characteristic is generated by at least one rotating directional radiation (1, 7) of the radio signal.

10. Method in accordance with the preceding Claim,

10 characterized in that

the transmission characteristic of the radio signal is generated by several rotating directional radiations (1, 7).

11. Method in accordance with one of Claims 1 to 8,

15 characterized in that

the transmission characteristic is generated by an omnidirectional radiation characteristic (8) of the radio signal in which at least one rotating directional attenuation (9) of the radio signal is generated.

20 12. Method in accordance with one of Claims 1 to 11,

characterized in that

signaling data and/or communication data of a radio communication system is transmitted by the radio signal.

25 13. User terminal (MT) of a radio communication system, having a

device (RCDU) for detection of a radio signal with a rotating transmission characteristic (1, 7, 9), a device (RCU) for checking the presence of a reference event (t0, t4, ..., SFN0, SFN4, ...) defined as the data structure or data content (SFN0, SFN4, ...) of the radio

30 signal, a device (ODU) for determining the orientation of a

transmission characteristic (1, 7, 9) of the radio signal from the reference event (t_0 , t_4 , ..., SFN0, SFN4, ...), a device (BDU) for determining a position relative to a reference station (BS) from the orientation of the transmission characteristic 1, 7, 9).

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14. User terminal (MT) in accordance with Claim 13, characterized by
a device (RDU) for determining the relative distance (d) to the reference station (BS) from signal parameters of the radio signal.

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